

Cited Reference 4

Japanese Patent Laid-Open (Kokai) No. 178923/1991 (or JP 3-178923 A)

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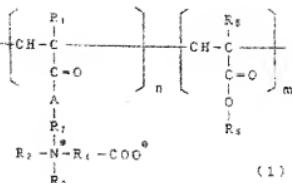
Applicant: Yamahatsu Sangyo Co., Ltd.

Title of Invention: Aerosol Hair-Dressing Agent

Disclosure A: (Page 1, left lower column line 2 to page 2 left upper column 14)

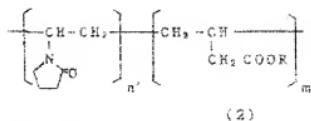
"Claims

Claim 1. An aerosol hair-dressing agent which comprises a foaming agent, a propellant and water, characterized in that (i) at least one of amphoteric polymeric resins having molecular weight of 5000~500000 represented by the following general formula:



(wherein R<sub>1</sub> and R<sub>5</sub>, which are the same or different, represent hydrogen or methyl, R<sub>2</sub> and R<sub>6</sub>, which are the same or different, represent alkyl having 1~4 carbon atoms, R<sub>4</sub> and R<sub>7</sub>, which are the same or different, alkylene having 1~4 carbon atoms, R<sub>8</sub> is alkyl or alkenyl having 1~24 carbon atoms, A represents oxygen or NH group, n : m = 90 : 10~50 : 50)

and/or (ii) at least one of non-ionic polymeric resins having molecular weight of 10000~200000 represented by the following general formula:



(wherein R is hydrogen or alkyl having 1~4 carbon atoms, n' : m' = 100 : 0~30 : 70.)

are further contained in an amount of 0.05 ~ 10.0 % by weight based on the total amount, when sprayed from an aerosol vessel and applied to hair, said hair-dressing agent foams on hair.

Claim 2. The aerosol hair-dressing agent according to claim 1 wherein at least one of an anionic surfactant, a cationic surfactant, an amphoteric surfactant and non-ionic surfactant is contained as the foaming agent in the amount of 0.05 to 10.0 % by weight based on the total amount.

Claim 3. The aerosol hair-dressing agent according to claim 1 wherein a mixture of a liquefied petroleum gas (LPG) and dimethyl ether (DME) (weight ratio of 5/95 ~ 40/60) are contained as the propellant in the amount of 10.0 to 40.0 % by weight based on the total amount.

Claim 4. The aerosol hair-dressing agent according to claim 1 wherein water is contained in the amount of 89.9 ~ 10.0 % by weight based on the total amount."

## PATENT ABSTRACTS OF JAPAN

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(21)Application number : 01-318646

(71)Applicant : YAMAHATSU SANGYO KK

(22)Date of filing : 07.12.1989

(72)Inventor : SHIMIZU AYAKO  
FUJINO KOICHI

## (54) AEROSOL HAIR-DRESSING AGENT

## (57)Abstract:

PURPOSE: To obtain an aerosol hair-dressing agent having excellent hair-dressing performance, free from stickiness, flaking tendency, etc., giving excellent feeling after application, sprayable in the state of mist and foaming after application by compounding a foaming agent, a propellant, a specific amount of an amphotolytic polymer resin and a nonionic polymer resin.

CONSTITUTION: The objective agent contains (A) one or more kinds of amphotolytic polymer resins expressed by formula I (R1 and R5 are H or methyl; R2 and R3 are 1-4C alkyl; R4 and R7 are 1-4C alkylene; R6 is 1-24C alkyl or alkenyl; A is O or NH; n:m is 90:10-50:50) and having molecular weight of 5,000-500,000 and/or (B) one or more kinds of nonionic polymer resins expressed by formula II (R is H or 1-4C alkyl; n:m' is 100:0-30:70) and having molecular weight of 1,000-200,000. The total amount of the

resins is 0.05-10.0wt.% based on the total composition including a foaming agent, a propellant and water. The hair-dressing agent is sprayed from an aerosol container in the form of mist and foams when attached to the hair.

